

AN

ADDRESS

DELIVERED BEFORE THE

NEW-HAMPSHIRE

STATE AGRICULTURAL SOCIETY,

AT ITS

Second Annual Exhibition,

IN MANCHESTER,

OCTOBER 8TH, 9TH & 10TH,

1851.

BY

MARSHALL P. WILDER,

PRESIDENT OF THE MASSACHUSETTS CENTRAL BOARD OF AGRICULTURE,
AND OF THE NORFOLK AGRICULTURAL SOCIETY.

MANCHESTER, N. H.:

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CLAREMONT, OCTOBER 27, 1851.

HON. MARSHALL P. WILDER:

Dear Sir,—I am happy to be the medium of transmitting to you the following Resolution, which passed unanimously at the annual meeting of the New-Hampshire State Agricultural Society held on the 9th ultimo, at Manchester:

“Resolved, That the thanks of the Society be tendered to the Hon. MARSHALL P. WILDER, for the able, eloquent and instructive address delivered by him before the Society this day; and that the Secretary is hereby instructed to transmit to him a copy of this Resolution, and solicit a copy of the Address for publication in the Transactions of the Society.”

In accordance with the foregoing, I respectfully ask, if agreeable to yourself, that the Society may be favored with a copy of the interesting Address alluded to in the Resolution, at as early a day as may be convenient, that we may soon put to press and more widely diffuse the thoughts, lessons and sentiments of wisdom with which your Address abounds.

I have the honor to be, Sir,

Very respectfully,

Your obdt. serv't,

J. S. WALKER,

Sec'y N. H. State Ag'l Society.

BOSTON, DECEMBER 5, 1851.

TO JOHN S. WALKER, Esq., Sec'y of the New-Hampshire State Agricultural Society:

Dear Sir,—I had the honor to receive your kind and complimentary note of the 27th of October, transmitting a resolution of thanks from your Association, for my Address delivered before the same at their last anniversary, and requesting in their behalf, a copy for publication. Its hasty preparation amidst the other numerous and pressing duties, predisposes me to decline complying with such a request; but my affection for my native State, and my desire to add my humble testimony in favor of her institutions, especially of that which you represent, and of the great interest of Agriculture, outweigh every private and personal consideration, and constrain me to submit the manuscript to your disposal.

I have the honor, dear Sir, to be a son of New-Hampshire, and a sincere friend of your institution.

MARSHALL P. WILDER.

ADDRESS.

“REPLENISH THE EARTH AND SUBDUE IT.” This was the mandate of heaven, the means which Infinite Wisdom provided for the sustenance and prosperity of the human race.

To whatever other pursuits labor may be directed, and however it may for a time reward the laborer, yet on Agriculture, the primitive employment of man, if we may trust the history of the past, must ever depend the welfare of the civilized world.

The advancement of this noble art and of kindred pursuits, is the worthy object of the Association whose anniversary we have met to celebrate.

Mr. President and Gentlemen of the New-Hampshire Agricultural Society:

I have consented to address you on this occasion, from no expectation of instructing the intelligent yeomanry, the enterprising mechanics, and the professional gentlemen of New-Hampshire, but from a desire to participate in the privileges and pleasures of this meeting, and to unite my humble testimony with yours in favor of the industrial pursuits of my native State.

A quarter of a century has elapsed since I became a resident in a neighboring Commonwealth, by whose side she fought in the battles which achieved our independence, and with whom she started in the career of improvement. During the twenty-five years, what surprising changes have taken place in the arts of life, and in the progress of civilization! The same heavens indeed stretch out their blue expanse above us. The glassy mirror of the Winnipissiogee still reflects that inimitable beauty within which it lies embosomed; Mount Washington, Kearsage,

Monadnock, and all her granite hills stand today, and will stand forever, in monumental grandeur, where the Great Architect first laid their deep foundations. The Piscataqua, the Merrimack, the Connecticut, rising from their original fountains, still continue to empty their waters in the same ocean. But how strangely are they diverted from their ancient beds! What has thrown those barriers across their natural channels? Who bid them flow in those artificial courses, and subordinated them to the will and service of man? What means that hum of countless spindles, that perpetual clatter of looms, that everlasting buz of machinery? Where is the pine forest which three olympiads ago, here waved in proud majesty? Why has it yielded to the march of improvement, and given place to yonder mart of business? What has built those abodes of annually reduplicating thousands? What has laid out those beautiful streets, lined them with those substantial structures, with those immense manufactories, those public institutions for the intellectual, social and moral advancement of society? Why that rumbling of cars freighted with merchandize, the product of art and industry, which is to create trade through the length and breadth of our land, and to compete with other countries in the great commercial ports of the world? What has suddenly made the Manchester of America in arts and manufactures, the rival of her English mother?

What? LABOR GUIDED BY INTELLIGENCE! But what has fed and sustained this labor? AGRICULTURE! AGRICULTURE!!

But these, surely, are not the results of accident; they are from the stamp of no Ajax foot, from the stroke of no magician's wand, from the interposition of no miraculous power. No! they are, one and all, glorious illustrations of human capability, coöperating with the benevolent design of the Creator, and acting in perfect harmony with his natural laws. They are the conquests of mind over matter, the dominion of man over nature; the triumphs of thought, expanded, strengthened, and ennobled, by education; the progress of art, nurtured in the school of science.

But in these respects, the history of Manchester is also the history of Nashua, Lawrence, Lowell, and many other manu-

facturing towns and cities, which, sustained by agriculture, give our beloved republic a more absolute independence than Venice, Rome, or Athens, ever enjoyed; and which bring her a larger revenue of glory, and secure for her a more enviable renown than that which immortalized the Cæsars, Alexanders and Pharaohs of the world.

The improvement of the present age has so accelerated the action of society, that more business is now transacted in a single year, than was performed during the whole antediluvian period. For all the purposes of useful and benevolent action, a man of the present generation at fifty years of age is older than any of the patriarchs. For instance; what astonishing improvements have been made in manufactures; in the art of printing; in electro-magnetism, and in the application of steam to the great industrial pursuits of man. This subtle agent already drives our cars over ten thousand miles of railroad, and when present contracts are completed, will compass ten thousand more. Despite wind and wave, storm and tide, it propels the thousands of steamboats which plough our navigable waters. It turns the machinery of the world. It gives new direction to energy and capital, brings distant places into proximity, and unites them together by bonds which no party animosity, no sectional prejudice, no vandal barbarity, can ever sunder.

But in this rapid progress of improvement, have our farmers moved, "*parri passu*," with those engaged in other departments of industry?

If Agriculture has not advanced, proportionally with other pursuits, the reason is evident. Science has but lately come to her aid, while she has long been laboring for the improvement of other arts; and in many instances with most remarkable success. But we rejoice that her light begins to shine into the deep recesses of the earth, to reveal treasures hitherto undiscovered, and to awaken sanguine hopes of future progress. These are strengthened by the valuable discoveries which she has already made, by the chemical analysis of soils, by prescriptions adapted to supply their deficient constituents, and by improvements in agricultural implements. In the latter, witness

the wonderful perfection to which mechanics have already brought the modern plough, the horse-rake, the threshing machine, and other implements, the importance of which to the farmer cannot be overrated. What American does not feel a generous pride at the success with which many of these implements have been crowned at the general competition of the World's Fair? Especially in the triumph of our plough and reaping machines, distancing all competition, and turning even the ridicule of European competitors into a universal burst of applause! Would that agriculture had received similar aid from science in all her other departments! Something has indeed been done, and this encourages the expectation of still greater results.

Did time permit we would speak at length of the mutual relation and dependance of the arts upon one another, and of their confederation, which is as real as that between the different States of our beloved Union. We sometimes speak of the north and the south, the east and the west, as if they were dissimilar and independent; but in truth, they are only different members of the same body politic, warmed and nourished by the same vital blood, moved by the same vital energy, one in origin, one in interest, one in glorious destiny. It is a narrow and short-sighted policy, unworthy of the descendants of the Puritans, unworthy of our age and country, which seeks the aggrandizement of one art or profession to the discouragement of others. Can the eye say to the hand, I have no need of thee? or the head to the feet, I have no need of you? "All are but parts of one great whole." Is one in prosperity? All rejoice. Is one in adversity? All mourn. Hence he who plunges his fatal steel into the heart of one, lets off the life-blood of all the rest.

The manufactories of our country, far from destroying any of the arts of life, have raised hundreds of mechanics to competency, and thousands of farmers, and their families, to plenty and independence. The same causes will work out similar results in all parts of our land.

But as we cannot on this occasion speak of all the arts, we

invite your special attention to Agriculture, to its importance ; its relation to the other pursuits, and to the means and motives for its promotion.

The ART of Agriculture relates to the successful cultivation of the soil; to such care of the field and herd, as will enable the husbandman to realize the largest and most perfect products, with the least labor and expense.

The SCIENCE of Agriculture treats of the *rationale* of these processes, and of the principle which should govern practice. In different localities, ages and climates, the Art may vary, but Science is the same *here* and *everywhere*, *today* and *forever*, immutable like its Wise Author. Art may mistake, and give a particular soil the crop which its constituents disqualify it to produce. But science never errs, for she understands the constituents of both, and therefore can decide upon the adaptation of the one to the other. The difference between them appears from the course that each would pursue in the examination of the soil. Art regards its external appearance, and discovers its adaptation to a given crop, often by doubtful experiment, by traditionary knowledge, or by mere conjecture. Science adopts a different course; she takes a portion of that soil and puts it in her crucible, and by analysis ascertains its constituents. She learns also the constituents of the desired crops, and of manures, and by a comparison of these results decides at once upon their mutual adaptation, or what changes must be made to produce fertility.

Let us illustrate the importance of scientific knowledge to the cultivator. A farmer in New-Hampshire had heard of the value of peat as a manure. He applied a large quantity fresh from its native bed to his arable land, in expectation of an abundant harvest; but to his great disappointment the crop was an entire failure. Why? It contained a large percentage of sulphate of iron (copperas), fatal to his crop. To this, chemistry would have applied lime as an antidote, and thus converted the sulphate of iron, into the sulphate of lime; a deadly poison, into a substance valuable to his soil, and conducive to its fertility. Again, a sea-captain who understood Neptune's dominions rather better than those of Ceres, purchased a farm in

Massachusetts, determined henceforth to plough old ocean's wave no more, but that he would enjoy comfort and tranquility in the evening of his life, in ploughing the soil. He had heard of the mistake of the New-Hampshire farmer, and resolving to avoid it, rushed to the opposite extreme. He thought lime as a fertilizer must be valuable. Having four hundred loads of excellent barn-yarn manure, he determined to make his debüt in farming by turning it to the highest practical account. He therefore purchased two hundred casks of lime, and mixed it with the manure. At first his expectations were raised to the highest pitch. He beheld his manure heap smoking like a coal-pit. Judge then of his disappointment when his scientific neighbors informed him that he had ruined the whole. The lime had disengaged the ammonia, and nearly destroyed the fertilizing qualities of the mass. The facts to which we have referred, may be extreme cases, but many of similar character have fallen under our observation, all teaching us the dependance of art on science. The connection of these is nowhere more intimate than in Agriculture.

We hear much said of the superior advantages of practice and *practical* knowledge. But we rejoice that the science of our day is eminently *practical*. Here lies the great superiority of modern chemistry over ancient alchemy. One works for the farmer and facilitates the various processes of the useful arts; the other occupied itself in the vain attempt to discover a universal elixir, and the philosopher's stone. Science will be to the farmer, what the safety lamp is to the miner, enabling him to explore the otherwise hidden treasures of mother earth, and to bring them up for the benefit of mankind; aye, as the pole-star to the mariner, a sure guide to the haven of hope. While, then, we pity the sons of our yeomanry, who look down with contempt upon a calling that the All-Wise and Infinite has honored before and above all others, we cannot withhold our commiseration from the men who deprecate "book farming," and denounce scientific improvements and discoveries.

The IMPORTANCE of Agriculture appears from its relation to other industrial pursuits. It is the central wheel in the great

industrial machine. Accelerate, or retard, its motion, and you change the action of the whole. Hence it should be respected and protected by government, fully and honorably represented in all our State and National councils.

Here arises a question which we address specially to the yeomanry of New-Hampshire. Why is it that after the claims of Agriculture have been faithfully presented, your intelligent legislators refuse to make appropriations for this worthy cause? After years of earnest pleading, by those who are supposed to understand its relative claims, and who eloquently urged appropriations in its behalf; especially after the popular branch of your legislature for two successive years have voted such appropriations by large majorities, showing that the voice of the people is right, why is it that Agriculture receives no State patronage in New-Hampshire? But these bills are not lost or buried beyond the hope of resurrection. The great voice of the people will call them ere long from their rest, to life again, and to that consideration and respect, to which they are so justly entitled.

The day is not distant when Agriculture, among all human pursuits, the first in origin, and first in importance, will not be the last, to receive the patronage of a free and enlightened government. The remedy lies with the people; they must instruct their representatives, or elect such as without instruction, will not make the *first* object of legislation the *last*, or neglect it altogether.

The primitive condition of man illustrates the beneficence, as well as the importance, of the farmer's calling. Twice in the history of the world has the human race consisted of a single family, conducting all the arts of life, and deriving its support from the soil. But when and where have mankind ever depended so exclusively upon any other pursuit? In every period the praises of Agriculture have been celebrated both in poetry and song. Scripture also abounds in illustrations and scenes from pastoral life. The rewards of this art have blessed the past, and its promises gild the future. It is the almoner of heaven's bounty, distributing to all with liberal

hand. How has it converted the noxious bog and barren waste into highly cultivated fields, and made the dreary wilderness to bud and blossom like the rose! How have its benign influences illumined the dark abode of want and misery! Oft has it fed the hungry, clothed the naked, and made the desolate heart to shout for joy. How have its blessings clustered around the social fire-side, making the domestic altar vocal with praise and thanksgiving! Well did the muse of our lamented FESSENDEN sing:

“Hail! Agriculture, heaven ordained,
Of every art the source,
Which man has polished, life sustained,
Since time commenced his course.
Where waves thy wonder working wand
What splendid scenes disclose!
The blasted heath, the arid strand,
Out-blooms the gorgeous rose!”

Again, Agriculture is the great paramount interest, and should be encouraged. It is the only industrial pursuit that cannot be overdone. The merchant may over-trade, the mechanic may glut the market, the professional man fail of employment and proper compensation; but the farmer cannot too highly cultivate the earth, nor does she fail to reward his labor.

“Trade's proud empire may indeed decay,
As ocean sweeps the labored mole away.
This independent power can time defy,
As rocks resist the billows and the sky.”

But Agriculture is not to be estimated alone by its paternal relation to other arts. It is Industry's eldest child, the primary element of social organization, and the foundation of property, order and civil institutions. Hence as before intimated, it should be the first care of government to foster it. Let politicians debate and decide other questions as they may, here interest and duty, patriotism and religion, all high and holy considerations, require them to unite. Let them not be turned aside by the currents and counter currents; by the whirlwinds, and tornadoes, of party politics. On the contrary, may Agriculture ever be advanced by pure minded, honor-

able men, patriots, philanthropists and christians, who, free from party prejudice, from sectional jealousy, and all selfish motives, shall seek in this, as in other worthy objects the highest welfare of their species.

It might naturally be expected that an art of such paramount importance to society,—an art cœval with the origin of the human race, transmitted through past generations, destined to descend through the long vista of future ages, and yielding support to the myriad millions of all time,—would long ago have reached its culminating point, and have received whatever aid science and legislation could bestow. But how different is the fact! Progress has indeed been made, yet experience, hoary with age, is to be systematized, and the deductions of science are still to furnish uniform rules for the successful practice of this art. How a result so desirable is to be secured, and Agriculture made to occupy the position in the great family of arts, which the God of Nature assigned it; and what are the means to such an end, are our next objects of inquiry.

The chief of these is scientific education; an instrumentality powerful in operation, certain in its results, and which should be accessible to all. The farmer needs something more than physical strength, and practical skill. If he would elevate himself and his calling; if he would rank with the Cobbetts, Tulls, Loudons, Johnstons, Leibigs, Thäers of Europe, or with our American Eliots, Pickerings, Lowells, Colmans, Phinneys, Hills, and other intelligent cultivators, he must be a man of large and various learning; nor must he ever account his education finished, but be forever growing in experience and wisdom.

Let us not be misunderstood; far be it from us to charge our intelligent and virtuous yeomanry with any deficiency in natural endowments. We have always affirmed, and desire here to repeat, the contrary. Our farmers are among our most benevolent and patriotic citizens; ardently devoted to our free institutions; reliable for the support of the same, and for the preservation of our American Union. They are the ballast of our national ship, keeping her upright and steady midst the winds and waves which agitate the political ocean; and as con-

servators of the republic, they hold with unwavering hand the balance of political power. As a class, they have intelligence and talent; many of them possess genius which would improve and adorn any vocation, or station in society. What they need is a wise direction of their energies to their profession, and this it is the object of the scientific education to furnish. It is not the energy that wields the spade, guides the plane, or reefs the sail, that is capable of demonstrating or improving this art. It is a higher power, the culture of the mind; and this in Agriculture, as in every other pursuit, must ever go hand in hand with the culture of the soil. Such has been the relation of science to the progress of art, and such it will forever continue to be.

“Survey the globe, through every zone,
From Lima to Japan,
In lineaments of light 'tis shown
That CULTURE makes the man.
All that man has, had, hopes, can have,
Past, promised, or possessed,
Are fruits which CULTURE gives, or gave,
At Industry's behest.”

The science of Agriculture has been defined, “a knowledge of the principles which govern judicious cultivation,” but in truth it is an aggregation of sciences. A youth may soon learn the construction of a steam engine, the principles of its action, to take it apart and put it together, and to direct its fearful energy with his puny arm. But if its mechanism is to be improved, and its utility increased, greater attainments, original and independent thought, are requisite. So in Agriculture, the farmer may soon learn sufficient of the natural sciences, to understand the common arts of cultivation, but their highest improvement requires a profound knowledge, not merely of one branch, but of many sciences, mutually related and reciprocally dependant. That I speak advisedly when I say that scientific education must teach the farmer the best arts of cultivation, must be evident to those who have attentively considered the splendid achievements, which in other departments, have resulted from the application of science to art. It has leveled our mountains, filled our vallies, dammed our rivers, bounded our

lakes, and to old ocean's wave, repeats the fiat of the Almighty: "Hitherto, but no farther." Aye, it is fast circling the globe with ribs of iron and nerves of steel.

We live in an age of wonders. Invention locks step with invention, and the improvement of yesterday heralds a more remarkable one tomorrow. The press throws off its impressions with the rapidity of thought; the fire-horse, impatient of restraint, stands ready to convey these heralds of intelligence to the remotest hamlet in the land; and the mystic wire, as if reproaching the sluggish power of steam, threads its way to encompass the globe, and to urge on with electric force the progress and improvement of the age. It is science and scientific knowledge which has secured these wonderful results, and it is on this that Agriculture must depend for similar improvement. In confirmation of this opinion we cite the following facts.

We have been favored by Prof. MAPES, a gentleman of large attainments and celebrity in the various departments of science, with the results of the analysis of the soil of more than one hundred farms in the State of New-Jersey. Some of these may not be uninteresting as felicitous illustrations of the advantages of science applied to Agriculture.

He analyzed the soil of a field for J. J. Schofield, Morristown, on which he desired to raise ruta-baga turnips. It was found deficient of the following constituents of that crop: phosphate of lime, potash, organic substance, including slight quantity of animal or nitrogenous matter. These being supplied, the result was a crop of 1400 bushels to the acre, as per certificate to the legislature. He also analysed the soil of a field for Dr. John Woodhull, which he had appropriated to the growth of wheat, and from which he obtained on the preceding year less than fifteen bushels to the acre. After supplying the deficient constituents, he obtained the succeeding year fifty-seven bushels to the acre. Another instance on the farm of Robert Rennie, (certified to before the committee of the legislature,) showing the great advantage of subsoiling and thorough cultivation. The Professor discovered by chemical analysis that the surface soil was deficient in constituents which abounded in

the subsoil. He prescribed subsoiling, and a thorough mixture of the upper and lower soils. Some gentlemen who came to witness the operation, went away in disgust at the great depth of the ploughing; but the success of the experiment at length changed their disgust to admiration. The preceding crops were fifteen bushels of corn, and sixty bushels of potatoes to the acre; but the succeeding were one hundred and fifty bushels of ears of corn, and three hundred and fifty bushels of potatoes. Such facts have been obtained by other scientific men, both in America and Europe. They might be multiplied indefinitely. We have space for only one more. A gentleman in Maryland whose corn-field appeared to be in the last stages of consumption, yielding less than one bushel to the acre, applied to a distinguished chemist, who upon an analysis of the soil, discovered that it contained sufficient lime, potash, magnesia, iron and organic matter, duly mixed with allumina and sand. One requisite for fertility only was wanting; this was phosphoric acid, which was supplied at an expense of ten dollars per acre, and the result was a crop of twenty-nine bushels of wheat.

Thus science teaches the secret of successful farming,—the multiplication of products without the increasing expense of adding field to field. In other words, the importance of scientific cultivation,—the economy of labor and capital,—of small farms, but of large crops and profits. The truth is, in this country where labor is dear, there are but two kinds of farming which will pay. One is, gathering the products that a kind Providence sends without cultivation, and the other, that which is guided by intelligence and science. No man can afford to cultivate a large farm poorly, nor to gather a small crop, where he might harvest a large one. What the poet says of other men, is emphatically true of the farmer. "*Act well your part; there all the honor lies.*" Aye, and in Agriculture, the profit lies there, too.

Under a system of scientific cultivation, the agricultural products of this State might be doubled without additional expense, and, of course, her capital. You would thus retain the enterprising sons of her yeomanry on the farms of their fathers; those sons who now seek their fortunes in other States, profes-

sions and employments. In New-England there is land enough, and to spare. It appears from the recent report of the valuation committee of Massachusetts, that if forest be excluded, not more than one-fourth of her remaining improvable territory is under cultivation. If the other three-fourths were only as highly improved, her agricultural products would be quadrupled; but much of it is capable of higher cultivation, and of producing crops many times larger than the present amount. This would enable her to sustain a population of many millions. Away, then, with the apprehension that New-England cannot sustain, by her agricultural products, her swarming population! She may not only greatly multiply her present crops, but introduce other products equally important with any now under cultivation. What a vast amount of trade has resulted by the introduction of flax from Egypt, which by recent improvements in mechanical and chemical science, may yet become as important to the free labor of the North, as cotton is to the slave labor of the South! What an amount of commerce has been created by the introduction of the mulberry from Eastern Asia into Europe, which gives employment to millions, and clothes other millions with their silken fabrics! By the introduction of the potato from South America, which has for ages fed the famishing millions of Ireland, and the partial loss of which, within a few years, has produced starvation and misery in that ill-fated country, and such pecuniary loss and lamentation through the civilized world! By the introduction of wheat, which gives immense wealth to the rising empire of the West, freights innumerable cars and ships, and feeds millions in our own and other countries!

Science has already improved our agricultural productions, and will continue to improve them. How much she has done for the potato! Compare the original, small, black, tough and acrid, with our numerous fair, mealy, palatable varieties! How dissimilar in quality, flavor and size. Compare the luscious peaches, with the original species, the almond, tough, dry and bitter; our magnificent apples, with the sour crab; our plum, with the parent sloe. The Bartlett and the Seckle pear, the green Gage plum, and the Baldwin apple, were produced from

accidental seed; but science teaches how to obtain new and rare varieties, by hybridization, or crossing the existing varieties.

This art depends on the sexual character of plants, which was developed by Linnæus, one century ago, amidst that ridicule and scorn which so often attach to discoveries, inventions and new theories, in our day. Our farmers are familiar with facts, which develop the principles on which this art depends. They are aware of the necessity of keeping their varieties of corn, squashes, and other grains and fruits, separate, lest they should intermix, and produce, not each after its kind, but other sorts unlike the original, sometimes as speckled as Jacob's cattle. But science alone can teach how to turn this law of nature to the highest practical account; and how, by it, to produce new and valuable varieties, adapted to their particular location and climate. By a corresponding law in the animal kingdom, we already have ornithologists who pretend to breed fowls to order, in respect to size, plumage, and other qualities; and also among our experienced stock breeders some who profess to raise domestic animals with similar exactness. Infinite Wisdom has fixed those laws and given us faculties to comprehend them, and they must be thoroughly understood, before farming can be raised to its legitimate and rightful position. Witness an approximation towards this general result in the improved breeds of our cattle, swine and horses, and in the endless number and variety of fruits and flowers produced, the last twenty-five years, by artificial impregnation. Thus, Mr. Knight, President of the London Horticultural Society, produced the Black Eagle and Elton cherry, the Dunmore pear, and other new and valuable fruits, perfectly suited to that latitude; and the process is equally applicable to the production of new grasses, grains, and vegetables, as to animals, flowers and fruit.

This principle also teaches the art of raising the most valuable seeds, to avoid the immense annual loss of labor and money, from the use of that which either never germinates, or if it does, produces an inferior crop. Age, which improves some seeds, destroys others, and the art and importance of procuring the best, are but imperfectly understood by most of our practical

cultivators. We have room but for a single fact. An association of scientific cultivators exists within our knowledge, whose object is to raise seed for each other. The cabbage seed which they raise for themselves, they sell at ten dollars per pound, but that which is raised without this care, is sold for one dollar per pound; hence, the former, which is really the cheaper, will not pay a profit, because its superior worth is not understood by our farmers.

We cannot refrain here from referring, also, to the necessity and utility of a proper division and individualization of labor. The importance of this, in other pursuits, is generally admitted. It is not less necessary for the farmer. Some have already practised upon this principle with the greatest advantage. It has relieved those fears which many entertained, lest the farms in the vicinity of our large commercial cities, would be ruined by railroads, which have only changed the crops and arts of cultivation. They have induced the owners of those farms to devote them to a single crop, or at most, to a few products for which their soil was specially adapted, or their proximity to the market, rendered profitable. For instance; look at Westborough, in Massachusetts, or Goffstown, in this State, and many other towns in the vicinity of cities, which formerly raised a great variety of crops, but which are now almost entirely devoted to the production of milk or vegetables. Other cultivators, near the market, have devoted their attention to the apple, the pear, the grape, the strawberry, and other fruits, which they raise in great perfection, and with satisfactory profit. A gentleman of our acquaintance raises and sells annually, in the market of one of our commercial cities, a large quantity of native grapes, at prices so satisfactory, as already to have induced in him a resolve to plant vineyards near all the principal cities of our country. The cultivation of foreign grapes is carried on extensively in the vicinity of Boston. One gentleman produces, annually, five thousand pounds; another, four thousand, and the whole crop in that neighborhood is estimated at more than forty thousand pounds, or twenty tons. The fame of the domestic wine manufactured from native grapes, in the vicinity of Cincinnati, is cöextensive with the land. From the

Secretary of the American Wine Growers' Association, Dr. WARDER, I have been favored with the following information. There are about one thousand acres now devoted to the culture of the grape, for wine, within twenty miles of that city; the profits are estimated at one hundred to one hundred and fifty dollars per acre, in a series of ten years, and the present crop at fifty to seventy-five thousand dollars, annually; and the prospective crop at one hundred to two hundred thousand dollars per annum. Mr. ERNST, the worthy President of the Cincinnati Horticultural Society, writes us, that the cultivation of the vine is no longer confined to that region, but is extending with rapidity up and down the Ohio, and in the interior, and is attracting the attention of their most enterprising and intelligent citizens; some in the hope that it will be the means of lessening intemperance, and in which wish I most sincerely concur.

A gentleman who makes the cultivation of the strawberry his special business, raised on five-eighths of an acre, more than three thousand boxes. These he sold by contract for the season, at twenty-five cents per box, or about twelve hundred dollars per acre. Who has not heard of Mr. PELL's apples? This gentleman has an orchard of several thousand trees, consisting of two varieties, to which he has specially adapted his soil by scientific cultivation. Most of his apples he ships to Liverpool, and receives in return a very large sum. These are not chimeras of the imagination, but incontrovertible facts, selected from a multitude, all bearing concurrent testimony to the utility of a division of labor, and a wise appropriation of soils to the crops for which they are best adapted. In other words, they prove the utility and indispensable necessity of a scientific education of farmers; for all these arts of cultivation depend upon science, and of course, progress in them must depend on scientific knowledge.

This part of our subject is capable of the most varied and extensive illustration. For example; a farmer is to purchase a horse. How important for him to know what breed is best adapted to his purpose, and what food and treatment he requires. Suppose he is entirely ignorant of veterinary science,

and his valuable beast is sick. He sends for a horse-doctor, who doses dobbin with noxious drugs, and as usual, the horse dies; the farmer buries his favorite animal, and pays the doctor's bill, all the while consoling himself that his loss must be ascribed to a mysterious Providence, rather than to the ignorance of the quack. Again, he is to purchase a stock of cows. Is it of small importance for him to understand the traits of the various breeds, and the marks of the best animals in each, and the adaptation of the same to his particular locality, or purpose? Some are best for beef, others for milk; the Durhams for the rich interval lands, and for the stall; the Jerseys for the peculiar richness of their milk, and the hardy Devon for the short hilly pastures, and the climate of New-England. Some species are specially valuable for one purpose, few are equally good for all. And who cannot appreciate the difference between the clean, smooth, small-boned, beautifully formed, quiet, and easily fattened Suffolk pig, and the long, pike-nosed, roached-backed, porcupine grunter, continually eating and squealing, but like Pharaoh's lean kine, never full? And why may not all of the swine in New-Hampshire be of the former class? If they were, their worth would be increased twenty per cent, not to speak of the great saving in fitting for market.

In the fattening and growth of animals, most cultivators have noticed that cereal grains fit their cattle for the market, sooner than the esculent; or, that one kind of grain produces this result more readily than others. Scientific education explains such facts. It teaches that the more oil food contains, the more fat will it produce; the more phosphate, the better is it suited to the growth of bone and muscle. Nay more; certain grains, by one art of culture, will produce these results more effectually than the same grain by another art. This the fowls of the air understand. An English cultivator had two fields of wheat side by side, and to human appearance equally luxuriant and attractive; but the sagacious birds left the one which was fertilized with barn-yard manure, and destroyed the other, which had been fed with guano. Why? Because it contained higher phosphated farinaceous matter. What instinct teaches the bird, education should teach the farmer, for that which rendered his

crop more attractive to the bird, makes it also more profitable for his own bread, and for the purpose of the baker.

But time forbids us to multiply illustrations of the farmer's need of a professional education. Give him this,—put into his hand the means of knowledge,—and by an economy of time and mental energy, his course will be onward and upward, towards that proud eminence which he ever ought to occupy. Give him this, and our most enterprising young men will no longer forsake the home of their childhood to seek their fortune in the city, to be driven back like Lot by the fiery storm that oft infests the place, to the country, in poverty and disgrace. Give him this, and you turn the tide of emigration from the auriferous mines of California, to the more hopeful “diggings” of our native soil.

But where shall he obtain such an education? We have no agricultural schools and colleges, though they abound in other countries. It appears from the recent report of President HITCHCOCK, one of the agricultural commissioners of Massachusetts, that there are in Europe three hundred and fifty-two such institutions; several of which he visited, and all of which exert a powerful and salutary influence, by the diffusion of intelligence, and by the elevation and improvement of this time-honored art. In republican France, there are seventy-five institutions of this kind under government patronage. To one of these she made an appropriation in 1849, of nearly half a million of dollars. Another has already graduated six hundred well-educated agriculturists, who immediately found honorable and lucrative situations at the head of their profession. Monarchical Russia, has sixty-eight of these schools, some of which are of a high order, and superior to those in other lands. Ireland, down-trodden, poor and miserable, has sixty-three of various grades; many of them of recent origin, all striving for the resuscitation of her soil, and for her restoration to pristine wealth and prowess. The result is certain. She is destined to rise; aye, is already rising; for in many parts where sterility lately reigned, are now to be seen highly cultivated, and productive fields. One instance shall suffice. At the Glasnevin school, scholars by request, came in from the field, and recited

in a manner that would have been creditable to any New-England college, in those natural sciences, upon which their practice depended, and their cultivation evinced their skill in the art. By a rotation of crops, and other improved arts founded on scientific principles they were able to produce, without manure, eighty bushels of oats, and seven hundred bushels of potatoes to the acre. Such facts authorize the assertion that the regeneration of that ill-fated country is certain. Poverty and starvation may drive from her shores thousands of her miserable peasantry, but a thriving and happy population will succeed them. It is coming. Scotland is already sending hither some of her intelligent and enterprising farmers. And can youthful America, the school of freedom, the home of enterprise, the birth-place of invention and genius, the land where every son is a king, and every daughter a queen, in her zeal for improvement, long behold these successful experiments, and remain inactive? The existence of such institutions among us, is only a question of time. Massachusetts, New-York, Ohio, and other States, are deliberating on the best mode of action. Foreign schools may not be congenial to our soil, but they will serve for models; they will prove suggestive of such as we need. Such institutions, if they have been successful in Europe, will be much more so in this country, where all enjoy the advantage of education, and where the institutions of the country, and every circumstance, favor their success. No doubt can remain that greater benefit will result from them in the United States, than has ever been realized from almost any other appropriation of government. Congress appropriates, annually, nearly fifty millions of dollars for current expenses, and occasionally large additional sums for special purposes, but she has not yet appropriated directly the first dollar for the advancement of agriculture; for that art which our immortal Washington, in his first message, commended to her particular care; and yet since the publication of that memorable document, she has expended in war, and its preparations, more than five hundred millions of dollars. (and is not the art of preserving life as valuable as the art of destroying it?) But this policy is not long to continue. America will yet educate the sons of her yeo-

manry for their favorite pursuits. Nor is this all; the daughters of our farmers, the future wives of those sons, must be educated; not only in the refinements and accomplishments of polished society, but in the more solid and useful branches connected with rural life. They must be trained, physically, as well as intellectually; but on this point, we cannot, and we trust, need not, enlarge in this place.

Agricultural societies and exhibitions are another powerful means of improvement. Agricultural papers and periodicals have wrought wonders in the dissemination of knowledge. Where there was only one ten years since, there are now a dozen, urged on in their noble cause by a generous rivalry and competition. Let no farmer deny his son the advantage of at least one paper devoted wholly, or in part, to Agriculture.

Much good is to be anticipated from the Society, whose anniversary we this day celebrate. The individual existence and enterprise necessary for its support, evince a zeal and energy most hopeful to the cause, and most honorable to those engaged in it. But man acts not alone in these worthy objects. Woman is still his help-meet. We are happy to see here today, so many of the mothers and daughters of New-Hampshire. The action of woman in industrial occupations, is no new thing under the sun. We learn from the American annals of 1753, that there was such a society, which celebrated its anniversary that year on Boston common, where three hundred of the worthy matrons and maidens of that day, appeared each at her spinning-wheel, and who were particularly addressed by the Rev. Dr. Cooper, who was the orator of the day. But we have examples of greater antiquity. Homer, Theocritus, and other classic writers, have celebrated the praises of woman in the industrial arts. Ladies, your presence here today is in imitation of these excellent examples; and though the distaff and spindle, and hand-loom have given place to the spinning-jenny, and the power-loom, yet the beautiful and tasteful fabrics, which your industry and skill have manufactured and placed on exhibition, are proud testimonials of the progress which your sex have made in the useful and ornamental arts.

Mr. President and gentlemen, I have detained you too long. My only apology is the importance and extent of the subject which the occasion called me to discuss.

We have considered Agriculture both as an art and as a science; its importance, its parental relation to other arts; its progress as dependent on the natural sciences, and the means and motives for its advancement, but we have only entered a field of vast extent, and glanced at a few of its prominent points. Your extensive exhibition of various rare and valuable productions in Agriculture, and the kindred arts, is an excellent testimonial that theory is here happily united with practice. By your appointment I have spoken; but you have furnished the best illustration of my argument, in these productions of your industry and skill. This exhibition is most honorable to its contributors, and specially to the officers and members of this association, who conceived the plan, and whose personal energy, liberality, and patriotism, have been prominent in its execution. Yet this is but the harbinger of future good, the dawn of a brighter day; and though all may not live to see it, yet your children and your children's children will rejoice in its meridian light; yea, they will rise up and call you blessed when they shall have garnered the harvest of this sowing. Courage, then, in the glorious enterprise in which you have embarked! You act not alone; kindred hearts beat with yours, and kindred hands labor in the same cause.

Such associations are working out glorious results for our beloved country, the happiest land upon which the sun can shine. They do not indeed restore man to Eden, but they make a Paradise on the land in which he dwells.

When I consider my country's vast extent of territory,—her agricultural resources,—her thriving arts and manufactures,—her rapid growth in intelligence, wealth, and power,—the hundred millions of human beings who will inhabit her at the close of the present century;—when I contrast all these, with the condition of the few feeble colonists who at first settled on her soil, I can but exclaim,—“truly this work is marvellous in our eyes; a little one has become a thousand, and a small one a

great nation!" On her depends the destiny of the world,—responsible, glorious trust! If any angel fallen from heaven present to her the apple of discord, and invite her to eat that forbidden fruit, may she respond, *Nay! Nay!!* I have in charge *life*,—the *life* of millions.

My country! Let the eagle of thy liberty, which so lately stood upon the cleft of 'thy Atlantic coast, but which stands to-day upon the lofty height of thy Rocky Mounts, stretching her broad wings from shore to shore, continue to shelter the happy millions of thy sons! And from those wings, from year to year, may her young eaglets fly to other lands, till the reign of universal freedom shall introduce a universal Jubilee! *My Country! My Country!!* Glorious prospects are before thee! Union, Wealth, and Power; Intelligence, Virtue, and Immortal Renown!